

nyhart

***Indiana State Teachers'
Retirement Fund
Pre-1996 Account***

***Annual Actuarial Valuation
June 30, 2017***

**Indiana State Teachers' Retirement Fund
Pre-1996 Account**

Annual Actuarial Valuation as of June 30, 2017

Nyhart

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October 30, 2017

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***The Board of Trustees
Indiana Public Retirement System
Indianapolis, IN***

Dear Board Members:

An actuarial valuation is prepared annually for the Indiana State Teachers' Retirement Fund Pre-1996 Account. Submitted in this report are the results of the June 30, 2017 actuarial valuation.

Census Data and Asset Information

The member census data and the asset information for this valuation were furnished by the Chief Finance and Administration Officer and Staff. Their efforts and cooperation in furnishing these materials are acknowledged with appreciation. We did not audit the information provided, but we did review it thoroughly for reasonableness and compared it with the prior year's submission for consistency.

Assumptions and Methods

The majority of the actuarial assumptions used in the June 30, 2017 valuation were adopted by the Board pursuant to the Experience Study completed in April 2015, which reflects the experience period from July 1, 2011 to June 30, 2014. Assumptions are summarized in the Assumptions and Methods section of this report. These assumptions and methods have been used to develop the Actuarially Determined Contribution and are consistent with the accounting requirements detailed in GASB Statements No. 67 and No. 68.

Benefit obligations in the June 30, 2017 valuation are determined using June 30, 2016 census data and rolled-forward to the June 30, 2017 measurement date at the valuation interest rate, using actual distributions and ASA account returns during that period. We are not aware of any material events that would require additional adjustments to the benefit obligations for changes to the population not anticipated in the demographic assumptions used in the valuation.

Plan assets and liabilities on June 31, 2017 and prior years include member ASA account balances. Effective June 30, 2018, those balances will be excluded from the valuation, resulting in a reduction in the reported funded percentage. If ASA balances were removed from the valuation on 6/30/2017, the funded percentage would be reduced to 23.9% from 29.6%.

Funding Objective

The Indiana State Teachers' Retirement Fund Pre-1996 Account is funded on a pay-as-you-go basis from the State of Indiana.

Fund Structure

The Indiana State Teachers' Retirement Fund (TRF) is one fund comprised of a two-account structure in compliance with Indiana Code Section 5-10.4-2-2. The Pre-1996 Account consists of members who were hired prior to July 1, 1995, and who have maintained continuous employment with the same school corporation or covered institution since that date.

Characteristics of the Pre-1996 Account

1. Active membership in the Pre-1996 Account continues to decline as members quit, become disabled, die, or retire.
2. The Defined Benefits from the Pre-1996 Account are funded by State appropriations (including contributions of some revenue from the State Lottery). At the time of retirement, Annuity Savings Account (ASA) benefits payable from the Pre-1996 Account are funded by the annuitization of Pre-1996 Account member contributions.

Funding Arrangements

Prior to the legislation that established the two-account structure of TRF, the Defined Benefits of the Indiana State Teachers' Retirement Fund were funded with a pay-as-you-go method. Under this arrangement, amounts were appropriated to meet the current year's pension payment requirements. Defined Benefits payable from the Pre-1996 Account continue to be funded on this basis.

Progress Towards Realization of Financing Objectives

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) is a standard measure of a Plan's funded status. In the absence of benefit improvements, it should increase over time, until it reaches 100%. The funded ratio of the Pre-1996 Account (pay-as-you-go) decreased to 29.6% from 29.7% for the preceding year. Based on the actuarial assumptions, it is anticipated that the Pre-1996 Account will attain 100% funded status on 6/30/2039.

Certification

We have included several schedules and exhibits in this report, including the following:

Financial Section

- Note 1 – Tables of Plan Membership
- Note 7 – Net Pension Liability and Actuarial Information – Defined Benefit Plans
- Schedule of Changes in Net Pension Liability and Net Pension Liability
- Schedule of Contributions (Actuarially Determined Contribution)
- Schedule of Notes to Required Supplementary Information

Actuarial Section

- Summary of INPRS Funded Status
- Historical Summary of Actuarial Valuation Results by Retirement Plan (Schedule of Funding Progress)
- Summary of Actuarial Assumptions, Methods and Plan Provisions
- Analysis of Financial Experience (Unfunded Actuarial Accrued Liability Reconciliation)
- Solvency Test
- Schedule of Active Member Valuation Data
- Schedule of Retirants and Beneficiaries

Statistical Section

- Membership Data Summary
- Ratio of Active Members to Annuitants
- Schedule of Benefit Recipients by Type of Benefit Option
- Schedule of Average Benefit Payments

To the best of our knowledge, this report presents a fair position of the funded status of the plan in accordance with the Actuarial Standards of Practice as described by the American Academy of Actuaries. In addition, information has been prepared in accordance with applicable government standards of financial reporting for defined benefit pension plans.

The actuarial valuation is prepared using information which has been reconciled and reviewed for reasonableness. We are not aware of any material inadequacy in employee census or asset values. The census information and the asset information have been provided to us by the Chief Financial Officer and Staff. We have not audited the information at the source, and therefore do not accept responsibility for the accuracy or the completeness of the data on which the information is based.

In our opinion, the actuarial assumptions and methods are individually reasonable and in combination represent our best estimate of anticipated experience of the plan.

Neither Nyhart nor any of its employees have any relationship with the plan or its sponsor which could impair or appear to impair the objectivity of this report.

The undersigned are compliant with the continuing education requirements of the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States.

Respectfully submitted,



Michael Zurek, EA, MAAA



Danielle Winegardner, ASA, EA, MAAA



Tayt V. Odom, FSA, EA, MAAA

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Executive Summary

Contribution Rates

The Calculated Contribution Rate section shows the calculated contribution rate for the Pre-1996 Account. Since the Pre-1996 Account is funded on a pay-as-you-go basis, the expected State contribution and the expected benefit payments are also shown in the Calculated Contribution Rate section.

Plan Provisions

There is no ad-hoc COLA on January 1, 2018. Instead, retirees were paid a service-related lump sum (i.e., referred to as 13th check) in September 2017. These changes are reflected in the June 30, 2017 valuation. Any future COLA is estimated by an ongoing assumption of 1.0% annual increases in all pension payments beginning January 1, 2019.

ASA annuitizations are scheduled to be based on a 4.50% conversion rate for the period from June 30, 2017 through December 31, 2017. After January 1, 2018, annuity conversions will occur outside of the plan. Benefit obligations in the June 30, 2017 valuation have been adjusted for the anticipated gains through December 31, 2017 for conversions at interest rates lower than the valuation interest rate of 6.75%.

SEA 46 provides that beginning July 1, 2017, the minimum pension benefit paid to a regularly retired member receiving an unreduced pension benefit is \$185 per month.

We are not aware of any other material changes in the plan provisions since the June 30, 2016 actuarial valuation.

Census Data

Census data for the valuation was provided by INPRS. We have thoroughly examined the data for reasonableness and consistency with prior years, but we did not otherwise audit it.

Assumptions and Methods

The actuarial assumptions used in the June 30, 2017 valuation are based on plan experience from July 1, 2011 to June 30, 2014.

The mortality assumption was modified to assume separate mortality experience for healthy and disabled members in the Plan. The healthy mortality assumption is the same that was used in the June 30, 2016 valuation. The disabled mortality assumption was changed to the RP-2014 Disabled Mortality Table with generational improvements from 2006 based on the 2014 Social Security Administration Trustee's Report.

Certain actuarial assumptions and methods were changed in 2017 for consistency across all INPRS pension plans as a result of an actuarial audit of the plans performed in 2016. The net impact of the changes is quantified in the report.

Benefit obligations in the June 30, 2017 valuation are determined using June 30, 2016 census data and rolled-forward to the June 30, 2017 measurement date at the valuation interest rate, using actual distributions and ASA account returns during that period. We are not aware of any material events that would require additional adjustments to the benefit obligations for changes to the population not anticipated in the demographic assumptions used in the valuation.

Plan assets and liabilities on June 31, 2017 and prior years include member ASA account balances. Effective June 30, 2018, those balances will be excluded from the valuation, resulting in a reduction in the reported funded percentage. If ASA balances were removed from the valuation on 6/30/2017, the funded percentage would be reduced to 23.9% from 29.6%.

Executive Summary (continued)

Investment Experience

The investment return for the year ended June 30, 2017 was higher than the assumed 6.75% return. The assets of the TRF Pre-1996 Account are commingled with the assets of other funds administered by INPRS. The TRF money-weighted return was 8.14% during fiscal 2017. Under the asset valuation method, market gains and losses are spread over a five-year period. The Market Value of Assets is currently \$133 million lower than the Actuarial Value of Assets, meaning the plan is currently in a position of having net deferred investment losses to be recognized in future years.

Challenges

A significant funding challenge will be for the State to meet the projected pay-as-you-go obligations as shown in the Payout Projections section for the Pre-1996 Account.

Summary of Key Valuation Results

	June 30, 2017	June 30, 2016	June 30, 2015	June 30, 2014
Member Information				
Number				
Active Members	13,128	14,327	16,310	19,210
Inactive Vested Members	2,504	3,119	4,545	3,314
Inactive Nonvested Members	400	394	408	546
Retired Members and Beneficiaries	<u>53,240</u>	<u>52,575</u>	<u>50,214</u>	<u>49,345</u>
Total	69,272	70,415	71,477	72,415
Valuation Payroll	\$ 933,277,569	\$ 1,044,096,459	\$ 1,178,845,758	\$ 1,383,241,991
Projected Payroll	\$ 831,100,000	\$ 934,500,000	\$ 1,098,600,000	\$ 1,275,600,000
Annual Benefit Payments				
Annuity	\$ 128,397,912	\$ 128,298,324	\$ 117,298,548	\$ 113,356,896
Pension	<u>\$ 978,563,520</u>	<u>954,007,788</u>	<u>886,611,432</u>	<u>860,278,572</u>
Total	\$ 1,106,961,432	\$ 1,082,306,112	\$ 1,003,909,980	\$ 973,635,468
Assets and Liabilities				
Accrued Liability				
ASA Account Balance	\$ 1,242,229,627	\$ 1,265,128,371	\$ 1,421,455,452	\$ 1,715,340,174
ASA Annuities	1,259,866,908	1,274,610,053	1,238,798,290	1,105,546,776
Pension: Retirees	10,393,806,931	10,083,545,681	9,249,267,624	8,580,843,864
Pension: Non-retirees	<u>3,840,865,539</u>	<u>4,216,916,305</u>	<u>5,108,224,963</u>	<u>4,953,485,217</u>
Total	\$ 16,736,769,005	\$ 16,840,200,410	\$ 17,017,746,329	\$ 16,355,216,031
Market Value of Assets				
ASA Account Balance	\$ 1,242,229,627	\$ 1,265,128,371	\$ 1,421,455,452	\$ 1,715,340,174
ASA Annuities	1,259,866,908	1,274,610,053	1,238,798,290	1,105,546,776
Pension: Retirees	2,315,532,988	2,247,790,526	2,439,655,728	2,680,979,925
Pension: Non-retirees	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	\$ 4,817,629,523	\$ 4,787,528,950	\$ 5,099,909,470	\$ 5,501,866,875
Actuarial Value of Assets				
ASA Account Balance	\$ 1,242,229,627	\$ 1,265,128,371	\$ 1,421,455,452	\$ 1,715,340,174
ASA Annuities	1,259,866,908	1,274,610,053	1,238,798,290	1,105,546,776
Pension: Retirees	2,449,003,566	2,469,250,799	2,511,385,118	2,537,464,437
Pension: Non-retirees	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	\$ 4,951,100,101	\$ 5,008,989,223	\$ 5,171,638,860	\$ 5,358,351,387
Unfunded Accrued Liability				
ASA Account Balance	\$ 0	\$ 0	\$ 0	\$ 0
ASA Annuities	0	0	0	0
Pension: Retirees	7,944,803,365	7,614,294,882	6,737,882,506	6,043,379,427
Pension: Non-retirees	<u>3,840,865,539</u>	<u>4,216,916,305</u>	<u>5,108,224,963</u>	<u>4,953,485,217</u>
Total	\$ 11,785,668,904	\$ 11,831,211,187	\$ 11,846,107,469	\$ 10,996,864,644
Funded Percentage				
ASA Account Balance	100.0%	100.0%	100.0%	100.0%
ASA Annuities	100.0%	100.0%	100.0%	100.0%
Pension: Retirees	23.6%	24.5%	27.2%	29.6%
Pension: Non-retirees	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>
Total	29.6%	29.7%	30.4%	32.8%
Pension Normal Cost	\$ 44,602,627	\$ 43,204,075	\$ 46,787,226	\$ 57,750,841
Annual Costs				
	Fiscal 2019	Fiscal 2018	Fiscal 2017	Fiscal 2016
Actuarially Determined Contribution (ADC)	\$ 928,500,000	\$ 902,500,000	\$ 873,400,000	\$ 869,500,000
Expected Pension Benefit Payments	\$ 1,074,400,000	\$ 1,047,300,000	\$ 1,014,500,000	\$ 960,100,000
Expected Pension Contributions	\$ 928,500,000	\$ 902,500,000	\$ 873,400,000	\$ 869,500,000

Valuations on and after June 30, 2014 are based on census data collected at the prior measurement date.

The plan is funded on a pay-as-you-go basis and the annual contribution is appropriated by state statute. The Actuarially Determined Contribution is equal to the state appropriation to fund the plan.

Unfunded Accrued Liability

\$Millions				
June 30	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Percentage
1975	\$ 1,570	\$ 312	\$ 1,258	19.9%
1980	2,843	539	2,304	19.0%
1985	4,023	1,073	2,950	26.7%
1991	7,182	2,161	5,021	30.1%
1992	7,949	2,376	5,573	29.9%
1993	8,508	2,592	5,916	30.5%
1994	9,087	2,809	6,278	30.9%
1995	9,675	2,984	6,691	30.8%
1996	10,283	3,242	7,041	31.5%
1997	10,868	3,678	7,190	33.8%
1998	11,481	4,130	7,351	36.0%
1999	12,173	4,731	7,442	38.9%
2000	12,409	5,210	7,199	42.0%
2001	12,696	5,363	7,333	42.2%
2002	13,498	5,555	7,943	41.2%
2003	13,355	5,728	7,627	42.9%
2004	13,549	5,765	7,784	42.5%
2005	14,254	5,797	8,457	40.7%
2006	15,003	5,478	9,525	36.5%
2007	15,988	5,764	10,224	36.1%
2008	15,792	5,954	9,838	37.7%
2009	16,027	5,109	10,918	31.9%
2010	16,282	5,382	10,900	33.1%
2011	16,318	5,227	11,091	32.0%
2012	16,522	4,978	11,544	30.1%
2013	16,462	5,235	11,227	31.8%
2014	16,355	5,358	10,997	32.8%
2015	17,018	5,172	11,846	30.4%
2016	16,840	5,009	11,831	29.7%
2017	16,737	4,951	11,786	29.6%

Reconciliation of Market Value of Assets

	June 30, 2016 thru June 30, 2017	June 30, 2015 thru June 30, 2016
Total Market Value, beginning of year ¹	\$ 4,787,528,950	\$ 5,099,909,470
Member Contributions	\$ 28,826,230	\$ 31,397,664
Employer Contributions	4,524,443	5,048,222
Non-Employer Contributing Entity Contributions	871,000,000	887,500,000
Benefit Payments	(1,258,244,492)	(1,272,953,810)
Net Transfers ²	<u>(642,959)</u>	<u>763,303</u>
Total Non-Investment Net Cash Flow	\$ (354,536,778)	\$ (348,244,621)
Administrative Expenses	\$ (6,226,019)	\$ (6,564,440)
Investment Return	<u>390,863,370</u>	<u>42,428,541</u>
Net Investment Return	\$ 384,637,351	\$ 35,864,101
Total Market Value, end of year	\$ 4,817,629,523	\$ 4,787,528,950
Market Value of Assets Approximate Time-Weighted Annual Rate of Return ³	8.3%	0.7%

¹ The asset values and cash flows on this page include ASA account balances, where asset values and cash flows on other pages may be pension values only.

² Net transfers from June 30, 2016 thru June 30, 2017 include member service credit purchases of \$9,951.

³ Consolidated pension and ASA account return, net of investment and administrative expenses, assumes cash flows occur at mid-year.

Note: Plan assets and liabilities on June 31, 2017 and prior years include member ASA account balances. Effective June 30, 2018, those balances will be excluded from the valuation

Development of the Actuarial Value of Assets

	June 30, 2016 thru June 30, 2017
1. Actuarial Value, beginning of year	\$ 5,008,989,223
2. ASA Account Balance, beginning of year	<u>\$ 1,265,128,371</u>
3. Actuarial Value, Net of ASA Account Balance, beginning of year [(1) – (2)]	\$ 3,743,860,852
4. Market Value, Net of ASA Account Balance, beginning of year	\$ 3,522,400,579
5. Market Value, Net of ASA Account Balance, end of year	\$ 3,575,399,896
6. Non-Investment Net Cash Flow	(230,208,105)
7. Net Investment Return	
a. Expected [.0675 x ((4)+0.5*(6))]	229,992,516
b. Actual [(5) - (4) - (6)]	<u>283,207,422</u>
8. Current Year Market Value Gain/(Loss) [(7b) - (7a)]	\$ 53,214,906
9. Deferred Recognition of Investment Gain/(Loss)	
a. Current Fiscal Year (80% of (8))	\$ 42,571,925
b. Current Fiscal Year - 1 (60%)	(125,340,415)
c. Current Fiscal Year - 2 (40%)	(100,871,088)
d. Current Fiscal Year - 3 (20%)	<u>50,169,000</u>
e. Total [(a) + (b) + (c) + (d)]	\$ (133,470,578)
10. Preliminary Actuarial Value, end of year [(5) - (9e)]	\$ 3,708,870,474
a. 80% of Market Value, end of year [80% of (5)]	2,860,319,917
b. 120% of Market Value, end of year [120% of (5)]	4,290,479,875
11. Actuarial Value, end of year [(10), but not Greater than (10b), nor Less than (10a)]	\$ 3,708,870,474
12. Actuarial Value as a % of Market Value [(11) / (5)]	103.73%
13. Net Investment Return on Actuarial Value [(11) - (3) - (6)]	\$ 195,217,727
14. Actuarial Value Net Rate of Return [(13) / ((3) + 0.5*(6))]	5.38%
15. Actuarial Value, Net of ASA Account Balance, end of year	\$ 3,708,870,474
16. ASA Account Balance, end of year	\$ 1,242,229,627
17. Actuarial Value, end of year [(15) + (16)]	\$ 4,951,100,101

Accrued Liability Reconciliation

	June 30, 2016 thru June 30, 2017	June 30, 2015 thru June 30, 2016
Total Accrued Liability, beginning of year	\$ 16,840,200,410	\$ 17,017,746,329
ASA Account Balance, beginning of year	\$ 1,265,128,371	\$ 1,421,455,452
Accrued Liability, Net of ASA Account Balance, beginning of year	\$ 15,575,072,039	\$ 15,596,290,877
Normal Cost	43,204,075	46,787,226
Actual Benefit Payments	(1,135,661,960)	(1,118,121,746)
Transfers	29,929,412	36,506,154
Expected Interest	<u>1,016,915,164</u>	<u>1,019,403,246</u>
Expected Accrued Liability, Net of ASA Account Balance, end of year	\$ 15,529,458,730	\$ 15,580,865,757
Sources of Change:		
New Entrants	\$ 5,306,277	\$ 9,136,688
Experience (Gain) or Loss	104,752,075	71,828,671
Mortality Change ¹	(13,020,736)	0
Actuarial Audit Changes ²	(48,527,270)	0
Additional Liability due to Cost-of-Living Adjustment ³	(87,642,538)	(86,759,077)
Plan Provision Changes ⁴	<u>4,212,840</u>	<u>0</u>
Accrued Liability, Net of ASA Account Balance, end of year	\$ 15,494,539,378	\$ 15,575,072,039
ASA Account Balance, end of year	\$ 1,242,229,627	\$ 1,265,128,371
Total Accrued Liability, end of year	\$ 16,736,769,005	\$ 16,840,200,410

¹ Change from healthy to disabled mortality assumption for disabled members.

² Changes in actuarial assumptions and methods for consistency across all INPRS pension plans resulting from the 2016 actuarial audit.

³ 13th check to retirees in lieu of the assumed 2018 and 2017 1.0% COLAs.

⁴ \$185 minimum monthly benefit payable beginning July 1, 2017 as specified in SEA 46.

Note: Plan assets and liabilities on June 31, 2017 and prior years include member ASA account balances. Effective June 30, 2018, those balances will be excluded from the valuation

Asset and Liability Allocation¹

	June 30, 2017		
	Non-Retired	Retired	Total
Accrued Liability (AL)			
ASA Balance	\$ 1,137,228,186	\$ 105,001,441	\$ 1,242,229,627
ASA Annuities	0	1,259,866,908	1,259,866,908
Pension: Retirees	0	10,393,806,931	10,393,806,931
Pension: Non-Retirees	3,840,865,539	0	3,840,865,539
Total	\$ 4,978,093,725	\$11,758,675,280	\$ 16,736,769,005
Market Assets			
ASA Balance	\$ 1,137,228,186	\$ 105,001,441	\$ 1,242,229,627
ASA Annuities	0	1,259,866,908	1,259,866,908
Pension: Retirees	0	2,315,532,988	2,315,532,988
Pension: Non-Retirees	0	0	0
Total	\$ 1,137,228,186	\$ 3,680,401,337	\$ 4,817,629,523
Actuarial Assets			
ASA Balance	\$ 1,137,228,186	\$ 105,001,441	\$ 1,242,229,627
ASA Annuities	0	1,259,866,908	1,259,866,908
Pension: Retirees	0	2,449,003,566	2,449,003,566
Pension: Non-Retirees	0	0	0
Total	\$ 1,137,228,186	\$ 3,813,871,915	\$ 4,951,100,101
Unfunded AL			
ASA Balance	\$ 0	\$ 0	\$ 0
ASA Annuities	0	0	0
Pension: Retirees	0	7,944,803,365	7,944,803,365
Pension: Non-Retirees	3,840,865,539	0	3,840,865,539
Total	\$ 3,840,865,539	\$ 7,944,803,365	\$ 11,785,668,904

	June 30, 2016		
	Non-Retired	Retired	Total
Accrued Liability (AL)			
ASA Balance	\$ 1,161,802,875	\$ 103,325,496	\$ 1,265,128,371
ASA Annuities	0	1,274,610,053	1,274,610,053
Pension: Retirees	0	10,083,545,681	10,083,545,681
Pension: Non-Retirees	4,216,916,305	0	4,216,916,305
Total	\$ 5,378,719,180	\$11,461,481,230	\$ 16,840,200,410
Market Assets			
ASA Balance	\$ 1,161,802,875	\$ 103,325,496	\$ 1,265,128,371
ASA Annuities	0	1,274,610,053	1,274,610,053
Pension: Retirees	0	2,247,790,526	2,247,790,526
Pension: Non-Retirees	0	0	0
Total	\$ 1,161,802,875	\$ 3,625,726,075	\$ 4,787,528,950
Actuarial Assets			
ASA Balance	\$ 1,161,802,875	\$ 103,325,496	\$ 1,265,128,371
ASA Annuities	0	1,274,610,053	1,274,610,053
Pension: Retirees	0	2,469,250,799	2,469,250,799
Pension: Non-Retirees	0	0	0
Total	\$ 1,161,802,875	\$ 3,847,186,348	\$ 5,008,989,223
Unfunded AL			
ASA Balance	\$ 0	\$ 0	\$ 0
ASA Annuities	0	0	0
Pension: Retirees	0	7,614,294,882	7,614,294,882
Pension: Non-Retirees	4,216,916,305	0	4,216,916,305
Total	\$ 4,216,916,305	\$ 7,614,294,882	\$ 11,831,221,187

¹ Assets are allocated first to member ASA account liabilities, then to ASA annuity liabilities, then to Pension: Retirees liabilities, and finally to Pension: Non-Retirees liabilities to determine unfunded accrued liabilities.

Solvency Test

\$Thousands

Year Ended June 30	Accrued Liability				Portion of Accrued Liability Covered by Assets				
	Active Member Contributions	Retirees and Beneficiaries	Active Member (Employer Financed Portion)	Total	Actuarial Value of Assets	Active Member Contribs.	Retirees and Bfcys	Active Member (Employer Financed Portion)	Total
2005	\$2,925,367	\$5,653,502	\$5,675,278	\$14,254,147	\$5,796,724	100.0%	50.8%	0.0%	40.7%
2006	\$2,898,891	\$6,238,115	\$5,865,465	\$15,002,471	\$5,477,221	100.0%	41.3%	0.0%	36.5%
2007	\$3,016,052	\$7,063,889	\$5,908,318	\$15,988,259	\$5,763,508	100.0%	38.9%	0.0%	36.1%
2008	\$2,613,138	\$7,244,422	\$5,934,745	\$15,792,305	\$5,953,991	100.0%	46.1%	0.0%	37.7%
2009	\$2,389,886	\$7,891,346	\$5,745,861	\$16,027,093	\$5,109,086	100.0%	34.5%	0.0%	31.9%
2010	\$2,353,715	\$8,153,240	\$5,775,111	\$16,282,066	\$5,382,410	100.0%	37.1%	0.0%	33.1%
2011	\$2,015,580	\$8,776,916	\$5,525,908	\$16,318,404	\$5,227,402	100.0%	36.6%	0.0%	32.0%
2012	\$1,782,353	\$9,451,792	\$5,287,870	\$16,522,015	\$4,978,107	100.0%	33.8%	0.0%	30.1%
2013	\$1,636,978	\$10,254,953	\$4,570,448	\$16,462,379	\$5,235,104	100.0%	35.1%	0.0%	31.8%
2014	\$1,525,192	\$9,876,539	\$4,953,485	\$16,355,216	\$5,358,351	100.0%	38.8%	0.0%	32.8%
2015	\$1,303,468	\$10,606,053	\$5,108,225	\$17,017,746	\$5,171,639	100.0%	36.5%	0.0%	30.4%
2016	\$1,161,803	\$11,461,481	\$4,216,916	\$16,840,200	\$5,008,989	100.0%	33.6%	0.0%	29.7%
2017	\$1,137,228	\$11,758,675	\$3,840,866	\$16,736,769	\$4,951,100	100.0%	32.4%	0.0%	29.6%

Analysis of Financial Experience¹

\$Thousands	June 30, 2016 thru June 30, 2017	June 30, 2015 thru June 30, 2016
Unfunded Accrued Liability, beginning of year	\$ 11,831,211	\$ 11,846,107
(Gain) / Loss:		
Actuarial Value of Assets	\$ 49,723	\$ 75,846
Actuarial Accrued Liabilities	110,059	80,965
Amortization of Existing Bases	(60,346)	(73,114)
Mortality Change ²	(13,021)	0
Actuarial Audit Changes ³	(48,527)	0
Change in Asset Smoothing Method ⁴	0	(11,834)
Additional Liability due to Cost-of-Living Adjustment ⁵	(87,643)	(86,759)
Plan Provision Changes ⁶	<u>4,213</u>	<u>0</u>
Net Change	\$ (45,542)	\$ (14,896)
Unfunded Accrued Liability, end of year	\$ 11,785,669	\$ 11,831,211

¹ Based on pension and ASA annuities only, i.e. net of ASA account balances.

² Change from healthy to disabled mortality assumption for disabled members.

³ Changes in actuarial assumptions and methods for consistency across all INPRS pension plans resulting from the 2016 actuarial audit.

⁴ Change in the asset smoothing period from 4 years to 5 years on June 30, 2016.

⁵ 13th check to retirees in lieu of the assumed 2018 and 2017 1.0% COLAs.

⁶ \$185 minimum monthly benefit payable beginning July 1, 2017 as specified in SEA 46.

Sensitivity to Changes in Assumed Investment Return / Interest Rate

\$Millions	Assumed Investment Return / Interest Rate				
	5.75%	6.00%	6.25%	6.50%	6.75%
Funded Status					
Actuarial Accrued Liability	\$ 18,267.2	\$ 17,872.0	\$ 17,485.2	\$ 17,106.9	\$ 16,736.8
Actuarial Value of Assets	<u>4,951.1</u>	<u>4,951.1</u>	<u>4,951.1</u>	<u>4,951.1</u>	<u>4,951.1</u>
Unfunded Accrued Liability	\$ 13,316.1	\$ 12,920.9	\$ 12,534.1	\$ 12,155.8	\$ 11,785.7
Funded Ratio	27.1%	27.7%	28.3%	28.9%	29.6%
Actuarially Determined Contribution Rate					
Normal Cost %	7.28%	6.75%	6.25%	5.79%	5.37%
UAL Amortization %	<u>414.07%</u>	<u>404.92%</u>	<u>395.91%</u>	<u>387.03%</u>	<u>378.28%</u>
Actuarially Determined Contribution %	421.35%	411.67%	402.16%	392.82%	383.65%

\$Millions	Assumed Investment Return / Interest Rate				
	7.00%	7.25%	7.50%	7.75%	8.00%
Funded Status					
Actuarial Accrued Liability	\$ 16,399.3	\$ 16,068.8	\$ 15,745.0	\$ 15,427.7	\$ 15,130.2
Actuarial Value of Assets	<u>4,951.1</u>	<u>4,951.1</u>	<u>4,951.1</u>	<u>4,951.1</u>	<u>4,951.1</u>
Unfunded Accrued Liability	\$ 11,448.2	\$ 11,117.7	\$ 10,793.9	\$ 10,476.6	\$ 10,179.1
Funded Ratio	30.2%	30.8%	31.4%	32.1%	32.7%
Actuarially Determined Contribution Rate					
Normal Cost %	4.97%	4.60%	4.27%	3.97%	3.69%
UAL Amortization %	<u>370.34%</u>	<u>362.51%</u>	<u>354.78%</u>	<u>347.16%</u>	<u>340.01%</u>
Actuarially Determined Contribution %	375.31%	367.11%	359.05%	351.13%	343.70%

Calculated Employer Contribution Rate

	June 30, 2017	% of Projected Payroll for Fiscal 2018
Normal Cost	\$ 44,602,627	5.37%
Amortization of Unfunded Accrued Liability		
Unfunded Accrued Liability (UAL) ¹	\$ 11,785,668,904	
Unamortized UAL from Prior Years ²	9,763,573,856	
Net Unamortized UAL	\$ 2,022,095,048	
Amortization Factor (5-years, level dollar) ²	4.4064	
Current Year Amortization Payment	\$ 458,899,566	
Payments Established in Prior Years ²	2,685,006,170	
Total Amortization Payments	\$ 3,143,905,736	378.28%
Calculated Employer Contribution Rate	\$ 3,188,508,363	383.65%

	Fiscal 2018	Fiscal 2019
Expected Pension Benefit Payments ³	\$ 1,074,400,000	\$ 1,074,400,000
Expected Pension Contributions	\$ 902,500,000	\$ 928,500,000

The Pre-1996 Account is funded on a pay-as-you-go basis. The figures shown above reflect the expected defined benefit pension payments (excluding ASA annuities) and contributions to be made during fiscal year 2018 and fiscal year 2019.

¹ Pension and ASA annuity only

² The amortization period was changed from 30 years to 5 years on a retroactive basis on 6/30/2016.

³ Fiscal 2018 expected pension benefit payments are based on 6/30/2016 census data used in the 6/30/2017 valuation and will not necessarily match the entry on page 2, which is based on 6/30/2015 census data used in the 6/30/2016 valuation.

Amortization Schedule for Calculated Employer Contribution Rate

Date Established	Years Remaining	Unamortized Balance	Annual Payment
6/30/2016	4	\$ 9,763,573,856	\$ 2,685,006,170
6/30/2017	5	<u>2,022,095,048</u>	<u>458,899,566</u>
		\$ 11,785,668,904	\$ 3,143,905,736

Statement of Fiduciary Net Position

	June 30, 2017	June 30, 2016
Assets		
Cash and Cash Equivalents	\$ 598,751	\$ 662,489
Receivables		
Contributions	\$ 2,834,262	\$ 2,702,069
Miscellaneous	451,092	753,761
Investments	26,558,519	63,876,444
Foreign Exchange Contracts	998,716,925	875,926,513
Accrued Interest and Dividends	12,430,072	13,606,126
Due from Other Funds	499,933	625,443
Total Receivables	<u>\$ 1,041,490,803</u>	<u>\$ 957,490,356</u>
Investments		
Short Term	\$ 16,059,272	\$ 10,777,932
Pooled Unit Trust Assets		
Repurchase Agreements	254,796	937,151
Short Term Investments	223,654,230	271,426,327
Fixed Income	1,271,820,738	1,911,240,435
Equities	1,327,037,118	1,306,266,586
Alternatives	1,430,790,115	1,473,309,507
Derivatives	604,334,042	(120,743)
Securities Lending Collateral	39,028,027	55,285,373
Total Investments	<u>\$ 4,912,978,338</u>	<u>\$ 5,029,122,568</u>
Net Capitalized Assets	<u>\$ 138,857</u>	<u>\$ 456,868</u>
Total Assets	<u>\$ 5,955,206,749</u>	<u>\$ 5,987,732,281</u>
Liabilities		
Accounts Payable	\$ 252,724	\$ 327,954
Retirement Benefits Payable	16,508,084	113,659,683
Salaries and Benefits Payable	0	0
Investments Payable	41,174,748	117,665,842
Foreign Exchange Contracts	1,002,277,426	872,852,435
Securities Lending Obligations	39,028,027	55,285,373
Securities Sold Under Agreement to Repurchase	37,499,339	39,090,484
Due to Other Funds	836,878	1,321,560
Total Liabilities	<u>\$ 1,137,577,226</u>	<u>\$ 1,200,203,331</u>
Net Position Restricted for Pensions	\$ 4,817,629,523	\$ 4,787,528,950

Statement of Changes in Fiduciary Net Position

	June 30, 2017	June 30, 2016
Additions		
Contributions		
Member Contributions	\$ 28,836,181	\$ 31,529,227
Employer Contributions	4,524,443	5,048,222
Nonemployer Contributing Entity Contributions	871,000,000	887,500,000
Other Contributions	<u>0</u>	<u>0</u>
Total Contributions	\$ 904,360,624	\$ 924,077,449
Investment Income/(Loss)		
Net Appreciation/(Depreciation)		
Fair Value of Investments	\$ 352,529,939	\$ (466,156)
Other Net Investment Income	571,546	497,750
Net Interest and Dividends Income	66,742,038	69,208,548
Miscellaneous Income	0	0
Securities Lending Income	<u>466,409</u>	<u>644,513</u>
Total Investment Income/(Loss)	\$ 420,309,932	\$ 69,884,655
Less Direct Investment Expenses		
Investment Management Fees	\$ (27,148,751)	\$ (25,258,802)
Securities Lending Fees	(91,180)	(118,975)
Other Direct Investment Expenses	<u>(2,206,631)</u>	<u>(2,078,339)</u>
Total Direct Investment Expenses	\$ (29,446,562)	\$ (27,456,116)
Net Investment Income/(Loss)	\$ 390,863,370	\$ 42,428,539
Other Additions		
Miscellaneous	\$ 0	\$ 0
Interfund Transfers	<u>4,206,421</u>	<u>4,057,252</u>
Total Other Additions	\$ 4,206,421	\$ 4,057,252
Total Additions	\$ 1,299,430,415	\$ 970,563,240
Deductions		
Pension and Disability Benefits	\$ 1,253,251,178	\$ 1,266,950,042
Special Death Benefits	0	0
Distributions of Contributions and Interest	4,993,314	6,003,767
Pension Relief Distributions	0	0
Local Unit Withdrawals	0	0
Administrative Expenses	6,226,019	6,564,440
Project Expenses	0	0
Interfund Transfers	<u>4,859,331</u>	<u>3,425,511</u>
Total Deductions	\$ 1,269,329,842	\$ 1,282,943,760
Net Increase/(Decrease) in Net Position	\$ 30,100,573	\$ (312,380,520)
Net Position Restricted for Pensions		
Beginning of Year	\$ 4,787,528,950	\$ 5,099,909,470
End of Year	\$ 4,817,629,523	\$ 4,787,528,950

Schedule of Changes in Net Pension Liability and Related Ratios

	June 30, 2017	June 30, 2016	June 30, 2015
Total Pension Liability			
Total Pension Liability, beginning of year	\$ 16,840,200,410	\$ 17,017,746,329	\$ 16,355,216,031
Annuity Savings Account (ASA), beginning of year	1,265,128,371	1,421,455,452	1,715,340,174
Excluding ASA, beginning of year	15,575,072,039	15,596,290,877	14,639,875,857
Service Cost	\$ 43,204,075	\$ 46,787,226	\$ 57,750,841
Interest Cost	1,016,915,164	1,019,403,246	959,894,924
Experience (Gains)/Losses	22,415,814	(5,793,718)	(140,465,814)
Assumption Changes	(61,548,006)	0	1,033,157,373
Plan Amendments	4,212,840	0	0
Benefit Payments	(1,135,661,960)	(1,118,121,746)	(1,100,434,461)
ASA Annuitizations	30,502,555	35,185,531	143,225,034
Net Member Reassignments	(573,143)	1,320,623	3,265,736
Other	<u>0</u>	<u>0</u>	<u>21,387</u>
Net Change in Total Pension Liability, Excluding ASA	\$ (80,532,661)	\$ (21,218,838)	\$ 956,415,020
Net Change in Total Pension Liability, ASA	(22,898,744)	(156,327,081)	(293,884,722)
Net Change in Total Pension Liability	(103,431,405)	(177,545,919)	662,530,298
Total Pension Liability, Excluding ASA, end of year	\$ 15,494,539,378	\$ 15,575,072,039	\$ 15,596,290,877
Total Pension Liability, ASA, end of year	1,242,229,627	1,265,128,371	1,421,455,452
Total Pension Liability, end of year	16,736,769,005	16,840,200,410	17,017,746,329
Fiduciary Net Position			
Fiduciary Net Position, beginning of year	\$ 4,787,528,950	\$ 5,099,909,470	\$ 5,501,866,875
Employer Contributions	4,524,443	5,048,222	5,810,942
Nonemployer contributing entities contributions	871,000,000	887,500,000	845,615,950
Member Contributions	28,836,181	31,397,664	41,740,139
Net investment income	390,863,370	42,428,541	36,885,511
Benefit Payments	(1,258,244,492)	(1,272,953,810)	(1,328,854,709)
Net Member Reassignments	(652,910)	763,303	3,353,891
Administrative Expenses	(6,226,019)	(6,564,440)	(6,530,516)
Other	<u>0</u>	<u>0</u>	<u>21,387</u>
Net Change in Fiduciary Net Position	\$ 30,100,573	\$ (312,380,520)	\$ (401,957,405)
Fiduciary Net Position, end of year	\$ 4,817,629,523	\$ 4,787,528,950	\$ 5,099,909,470
Net Pension Liability and Related Ratios			
Net Pension Liability, beginning of year	\$ 12,052,671,460	\$ 11,917,836,859	\$ 10,853,349,156
Net Pension Liability, end of year	\$ 11,919,139,482	\$ 12,052,671,460	\$ 11,917,836,859
Plan's Fiduciary Net Position as a			
Percentage of the Total Pension Liability	28.8%	28.4%	30.0%
Covered Employee Payroll (Actual)	\$ 912,684,850	\$ 989,093,421	\$ 1,074,826,991
Net Pension Liability as a Percentage of			
Covered Employee Payroll	1305.9%	1218.6%	1108.8%

Note: Plan assets and liabilities on June 31, 2017 and prior years include member ASA account balances. Effective June 30, 2018, those balances will be excluded from the valuation

Schedule of Changes in Net Pension Liability and Related Ratios

	June 30, 2014	June 30, 2013
Total Pension Liability		
Total Pension Liability, beginning of year	\$ 16,463,598,481	\$ 16,522,014,519
Annuity Savings Account (ASA), beginning of year	1,814,049,671	1,974,075,962
Excluding ASA, beginning of year	14,649,548,810	14,547,938,557
Service Cost	\$ 68,860,011	\$ 81,343,107
Interest Cost	961,628,534	957,228,337
Experience (Gains)/Losses	(70,517,351)	(40,718,985)
Assumption Changes	0	0
Plan Amendments	(25,523,806)	0
Benefit Payments	(1,034,563,166)	(988,335,242)
ASA Annuitizations	93,981,713	86,941,060
Net Member Reassignments	(3,801,799)	0
Other	262,911	5,151,976
Net Change in Total Pension Liability, Excluding ASA	\$ (9,672,953)	\$ 101,610,253
Net Change in Total Pension Liability, ASA	(98,709,497)	(160,026,291)
Net Change in Total Pension Liability	(108,382,450)	(58,416,038)
Total Pension Liability, Excluding ASA, end of year	\$ 14,639,875,857	\$ 14,649,548,810
Total Pension Liability, ASA, end of year	1,715,340,174	1,814,049,671
Total Pension Liability, end of year	16,355,216,031	16,463,598,481
Fiduciary Net Position		
Fiduciary Net Position, beginning of year	\$ 5,215,201,405	\$ 5,058,910,388
Employer Contributions	6,325,502	9,483,547
Nonemployer contributing entities contributions	825,616,000	1,003,596,233
Member Contributions	47,027,857	45,420,617
Net investment income	647,581,967	315,598,000
Benefit Payments	(1,229,300,965)	(1,212,945,000)
Net Member Reassignments	(3,593,066)	3,059,000
Administrative Expenses	(7,010,723)	(7,926,000)
Other	18,898	4,620
Net Change in Fiduciary Net Position	\$ 286,665,470	\$ 156,291,017
Fiduciary Net Position, end of year	\$ 5,501,866,875	\$ 5,215,201,405
Net Pension Liability and Related Ratios		
Net Pension Liability, beginning of year	\$ 11,248,397,076	\$ 11,463,104,131
Net Pension Liability, end of year	\$ 10,853,349,156	\$ 11,248,397,076
Plan's Fiduciary Net Position as a		
Percentage of the Total Pension Liability	33.6%	31.7%
Covered Employee Payroll (Actual)	\$ 1,262,828,000	\$ 1,383,428,000
Net Pension Liability as a Percentage of		
Covered Employee Payroll	859.4%	813.1%

Note: Plan assets and liabilities on June 31, 2017 and prior years include member ASA account balances. Effective June 30, 2018, those balances will be excluded from the valuation

Required Supplementary Information under GASB No. 68

	June 30, 2017	June 30, 2016	June 30, 2015	June 30, 2014
Schedule of Contributions				
Actuarially Determined Contribution* Contributions in Relation to the Actuarially Determined Contributions	\$ 875,524,443	\$ 892,548,222	\$ 851,426,892	\$ 831,941,502
Contribution Deficiency/(Excess)	<u>875,524,443</u>	<u>892,548,222</u>	<u>851,426,892</u>	<u>831,941,502</u>
	\$ 0	\$ 0	\$ 0	\$ 0
Covered Employee Payroll Contributions as a Percentage of Covered Employee Payroll	\$ 912,684,850	\$ 989,093,421	\$ 1,074,826,991	\$ 1,262,828,000
	95.9%	90.2%	79.2%	65.9%

Schedule of Investment Returns

Annual Money-Weighted Rate of Return, Net of Investment Expense	8.14%	1.01%	0.57%	12.71%
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June 30, 2013

Schedule of Contributions

Actuarially Determined Contribution* Contributions in Relation to the Actuarially Determined Contributions	\$ 1,013,079,780
Contribution Deficiency/(Excess)	<u>1,013,079,780</u>
	\$ 0
Covered Employee Payroll Contributions as a Percentage of Covered Employee Payroll	\$ 1,383,428,000
	73.2%

Schedule of Investment Returns

Annual Money-Weighted Rate of Return, Net of Investment Expense	5.11%
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Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability of the TRF Pre-1996 Account calculated using the discount rate of 6.75%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1% lower (5.75%) or 1% higher (7.75%) than the current rate:

	1% Decrease 5.75%	Current Rate 6.75%	1% Increase 7.75%
Net Pension Liability	\$ 13,449,615,807	\$ 11,919,139,482	\$ 10,610,091,519

**The plan is funded on a pay-as-you-go basis and the annual contribution is appropriated by state statute. The Actuarially Determined Contribution is equal to the state appropriation to fund the plan.*

Pension Expense

	June 30, 2017	June 30, 2016
Service Cost	\$ 43,204,075	\$ 46,787,226
Interest on Total Pension Liability	1,016,915,164	1,019,403,246
Projected Earnings on Pension Plan Investments	(229,782,387)	(241,693,073)
Changes of Benefit Terms	4,212,840	0
Pension Plan Administrative Expenses	6,226,019	6,564,440
Other Changes	0	0
Current Period Recognition of Deferred Outflows/(Inflows) of resources:		
Differences between Expected and Actual Experience in Measurement of the Total Pension Liability	22,415,814	(5,793,718)
Changes of Assumptions	(61,548,006)	0
Differences between Projected and Actual Earnings on Pension Plan Investments	<u>22,882,378</u>	<u>34,812,589</u>
Total	\$ 824,525,897	\$ 860,080,710

**Deferred Outflows of Resources and Deferred Inflows of Resources
Related to Pensions**

	Initial Balance	Initial Amortization Period	Annual Recognition	June 30, 2017 Balance
Difference between Expected and Actual Experience in Measurement of the Total Pension Liability				
Base for Year ending June 30, 2017	\$ 22,415,814	1	\$ 22,415,814	\$ 0
Base for Year ending June 30, 2016	(5,793,718)	1	0	0
Base for Year ending June 30, 2015	(140,465,814)	1	0	0
Base for Year ending June 30, 2014	(70,517,351)	2	0	0
Change of Assumptions				
Base for Year ending June 30, 2017	\$ (61,548,006)	1	\$ (61,548,006)	\$ 0
Base for Year ending June 30, 2016	0		0	0
Base for Year ending June 30, 2015	1,033,157,373	1	0	0
Base for Year ending June 30, 2014	0		0	0
Differences between Projected and Actual Earnings on Pension Plan Investments				
Base for Year ending June 30, 2017	\$ (59,651,054)	5	\$ (11,930,211)	\$ (47,720,843)
Base for Year ending June 30, 2016	202,114,702	5	40,422,940	121,268,822
Base for Year ending June 30, 2015	250,957,682	5	50,191,536	100,383,074
Base for Year ending June 30, 2014	(279,009,435)	5	(55,801,887)	(55,801,887)
Changes in State's Proportion and Differences between Actual State Contributions and State's Proportionate Share of Contributions				
Base for Year ending June 30, 2017	\$ 0		\$ 0	\$ 0
Base for Year ending June 30, 2016	0		0	0
Base for Year ending June 30, 2015	0		0	0
Base for Year ending June 30, 2014	0		0	0
Total			\$ (16,249,814)	\$ 118,129,166

The balances as of June 30, 2017 of the deferred outflows/(inflows) of resources will be recognized in pension expense as follows:

Year Ended June 30,	
2018	\$ 22,882,378
2019	\$ 78,684,267
2020	\$ 28,492,731
2021	\$ (11,930,210)
2022	\$ 0
Thereafter	\$ 0

Member Data

The tables below summarize the member data used in the valuation. The June 30, 2017 valuation is based on June 30, 2016 census data, with liabilities rolled-forward to the June 30, 2017 measurement date. The data summarized in this section is as of the June 30, 2016 census collection date. The pages that follow show various distributions of the member groups.

	Males	Females	Total
Number of Actives	3,338	9,790	13,128
Average Age	55.2	54.9	55.0
Average Service	28.9	27.3	27.7
Average Pay	\$ 76,689	\$ 69,182	\$ 71,091
Number of Inactive Vesteds	557	1,947	2,504
Average Age	57.3	58.2	58.0
Average Service	20.9	19.2	19.6
Number of Inactive Nonvesteds	97	303	400
Number of Retirees and Beneficiaries	17,237	36,003	53,240
Average Age	73.2	72.7	72.9
Average Years Retired	13.5	12.9	13.1
Average Monthly Annuity ¹	\$ 232	\$ 186	\$ 201
Average Monthly Pension	\$ 1,668	\$ 1,466	\$ 1,532
Total Number of Members	21,229	48,043	69,272

¹ The average monthly annuity above is the average over all retirees and beneficiaries, including those that did not annuitize their ASA balances. The average monthly annuity for the 22,839 retirees and beneficiaries that did annuitize their ASA balances is \$468.

Active Member Data

June 30	Number	Valuation Payroll (\$000s)	Average			
			Age	Service	Pay Increase %	
1975	63,932	\$ 749,200	38.7	10.9	\$ 11,719	
1980	66,575	1,107,699	39.7	11.9	16,638	
1985	62,932	1,519,887	41.5	14.2	24,151	
1987	64,157	1,751,709	42.0	14.5	27,303	
1989	65,986	2,044,797	42.6	14.9	30,988	
1991	63,373	2,278,715	43.0	15.4	35,957	
1992	63,980	2,416,263	43.8	16.0	37,766	5.0%
1993	64,594	2,536,165	44.0	16.1	39,263	4.0
1994	65,209	2,614,915	44.1	16.2	40,101	2.1
1995	66,542	2,728,811	44.2	16.2	41,009	2.3
1996	70,183	2,805,823	44.2	15.7	39,979	(2.5)
1997	63,520	2,739,436	45.4	16.9	43,127	7.9
1998	59,030	2,699,183	46.4	18.0	45,726	6.0
1999	56,560	2,755,489	47.4	19.3	48,718	6.5
2000	52,920	2,561,533	48.2	20.1	48,404	(0.6)
2001	50,802	2,564,451	48.7	20.7	50,479	4.3
2002	47,510	2,604,956	49.4	21.5	54,830	8.6
2003	43,705	2,448,271	49.6	21.7	56,018	2.2
2004	41,510	2,384,480	50.1	22.2	57,444	2.5
2005	39,097	2,305,726	50.6	22.7	58,974	2.7
2006	36,994	2,237,380	51.1	23.2	60,480	2.6
2007	36,526	2,376,390	52.1	23.8	65,060	7.6
2008	34,628	2,295,816	52.5	24.6	66,299	1.9
2009	29,297	2,030,484	53.7	26.0	69,307	4.5
2010	26,439	1,865,102	53.9	26.3	70,544	1.8
2011	24,710	1,762,750	54.5	26.9	71,338	1.1
2012	22,688	1,637,066	54.9	27.4	72,156	1.1
2013	19,210	1,383,428	54.7	27.2	72,016	(0.2)
2014*	19,210	1,383,428	54.7	27.2	72,016	(0.2)
2015*	16,310	1,178,846	54.6	27.2	72,277	0.4
2016*	14,327	1,044,096	54.6	27.3	72,876	0.8
2017*	13,128	933,278	55.0	27.7	71,091	(2.5)

* Valuations on and after June 30, 2014 are based on census data collected at the prior measurement date.

Active Members

By Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date						Total
	<10	10-14	15-19	20-24	25-29	30+	
15-19							
20-24							
25-29							
30-34							
35-39							
40-44	39	23	31	167	1		261
45-49	145	128	143	1,642	504	4	2,566
50-54	77	94	71	613	1,804	742	3,401
55-59	42	44	38	469	836	2,174	3,603
60-64	36	40	37	297	442	1,787	2,639
65-69	29	9	12	48	81	403	582
70-74	5	8	5	1	4	44	67
75-79	1					4	5
80 & over	2	1				1	4
Total	376	347	337	3,237	3,672	5,159	13,128

Average Age: 55.0
 Average Service: 27.7

Inactive Vested Members

By Attained Age and Years of Service

Attained Age	Years of Service at Termination						Total
	<10	10-14	15-19	20-24	25-29	30+	
30-34							
35-39							
40-44		18	6	5			29
45-49		122	75	59	4	1	261
50-54		207	116	101	61	17	502
55-59		181	139	140	107	96	663
60-64		280	101	78	61	143	663
65-69		154	39	19	28	88	328
70-74		10	4	5	2	7	28
75-79		1	3				4
80 & over		11	7	3	4	1	26
Total		984	490	410	267	353	2,504

Average Age: 58.0
 Average Service: 19.6

Retired Members

By Attained Age and Completed Years of Retirement

Attained Age	Years of Retirement						Total
	<10	10-14	15-19	20-24	25-29	30+	
Under 40	13	10	5	6	3	3	40
40 - 44	8	4	6	5		1	24
45 - 49	18	5	4	9			36
50 - 54	68	13	20	9	2	2	114
55 - 59	1,279	32	28	24	19	3	1,385
60 - 64	6,354	179	71	43	21	12	6,680
65 - 69	10,187	3,424	254	90	50	30	14,035
70 - 74	3,926	4,267	2,658	307	74	41	11,273
75 - 79	596	1,821	3,104	1,704	283	73	7,581
80 - 84	38	319	1,540	2,319	903	291	5,410
85 - 89	14	57	223	1,304	1,632	732	3,962
90 & Over	12	10	27	176	857	1,618	2,700
Total	22,513	10,141	7,940	5,996	3,844	2,806	53,240

Average Age: 72.9
Average Years Retired: 13.1

Retired Members

By Year of Retirement

Year of Retirement As of June 30	Number	Monthly Pension	
		Total	Average
Before 1978	323	\$ 123,845	\$ 383
1978	94	42,658	454
1979	120	61,291	511
1980	163	92,029	565
1981	173	92,769	536
1982	178	99,441	559
1983	241	143,410	595
1984	308	189,321	615
1985	450	299,683	666
1986	435	300,293	690
1987	522	393,602	754
1988	655	524,948	801
1989	567	482,402	851
1990	895	895,454	1,001
1991	897	974,861	1,087
1992	875	968,684	1,107
1993	936	1,119,240	1,196
1994	1,069	1,302,113	1,218
1995	1,390	1,770,697	1,274
1996	1,421	1,848,031	1,301
1997	1,244	1,599,584	1,286
1998	1,573	2,031,905	1,292
1999	1,474	2,017,081	1,368
2000	1,735	2,449,887	1,412
2001	1,711	2,494,709	1,458
2002	2,025	2,934,542	1,449
2003	1,795	2,651,968	1,477
2004	2,096	3,149,905	1,503
2005	2,025	3,195,302	1,578
2006	2,200	3,527,239	1,603
2007	2,127	3,342,907	1,572
2008	2,584	4,189,492	1,621
2009	1,879	3,185,280	1,695
2010	2,075	3,715,874	1,791
2011	2,815	5,212,268	1,852
2012	3,099	5,921,253	1,911
2013	2,617	5,198,761	1,987
2014	2,149	4,267,570	1,986
2015	2,500	5,076,823	2,031
2016	1,805	3,659,838	2,028
Total	53,240	\$ 81,546,960	\$ 1,532

Retired Members

Reconciliation of Benefit Recipients

	Number of Members	Sum of Annual Allowances*
Benefit Recipient Rolls, July 1, 2007	39,328	\$ 658,296,600
Added to Rolls	2,296	52,166,844
Removed from Rolls	(966)	(11,025,463)
Net Transfers to 1996 Account	(104)	(1,762,578)
Benefit Changes		<u>3,479,833</u>
End of Year Rolls	40,554	\$ 701,155,236
Percentage Increase in Annual Allowances		6.51%
Average Annual Allowances		<u>\$ 17,289</u>
Benefit Recipient Rolls, July 1, 2008	40,554	\$ 701,155,236
Added to Rolls	2,344	56,818,750
Removed from Rolls	(929)	(11,062,410)
Net Transfers to 1996 Account	579	11,768,469
Benefit Changes		<u>3,386,613</u>
End of Year Rolls	42,548	\$ 762,066,658
Percentage Increase in Annual Allowances		8.69%
Average Annual Allowances		<u>\$ 17,911</u>
Benefit Recipient Rolls, July 1, 2009	42,548	\$ 762,066,658
Added to Rolls	1,940	47,657,283
Removed from Rolls	(1,010)	(11,982,276)
Benefit Changes		<u>(6,968,893)</u>
End of Year Rolls	43,478	\$ 790,772,772
Percentage Increase in Annual Allowances		3.77%
Average Annual Allowances		<u>\$ 18,188</u>
Benefit Recipient Rolls, July 1, 2010	43,478	\$ 790,772,772
Added to Rolls	3,003	77,289,770
Removed from Rolls	(1,060)	(13,120,581)
Benefit Changes		<u>(4,230,857)</u>
End of Year Rolls	45,421	\$ 850,711,104
Percentage Increase in Annual Allowances		7.58%
Average Annual Allowances		<u>\$ 18,729</u>

* Pension and ASA annuity

Retired Members

Reconciliation of Benefit Recipients

	Number of Members	Sum of Annual Allowances*
Benefit Recipient Rolls, July 1, 2011	45,421	\$ 850,711,104
Added to Rolls	2,541	63,922,594
Removed from Rolls	(962)	(12,215,851)
Benefit Changes		(4,412,187)
End of Year Rolls	47,000	\$ 898,005,660
Percentage Increase in Annual Allowances		5.56%
Average Annual Allowances		\$ 19,107
Benefit Recipient Rolls, July 1, 2012	47,000	\$ 898,005,660
Added to Rolls	3,422	93,604,576
Removed from Rolls	(1,077)	(14,523,735)
Benefit Changes		(3,451,033)
End of Year Rolls	49,345	\$ 973,635,468
Percentage Increase in Annual Allowances		8.42%
Average Annual Allowances		\$ 19,731
Benefit Recipient Rolls, July 1, 2013	49,345	\$ 973,635,468
Added to Rolls	1,886	50,261,127
Removed from Rolls	(1,017)	(14,292,559)
Benefit Changes		(5,694,056)
End of Year Rolls	50,214	\$ 1,003,909,980
Percentage Increase in Annual Allowances		3.11%
Average Annual Allowances		\$ 19,993
Benefit Recipient Rolls, July 1, 2014	50,214	\$ 1,003,909,980
Added to Rolls	3,466	95,994,117
Removed from Rolls	(1,105)	(14,677,424)
Benefit Changes		(2,920,561)
End of Year Rolls	52,575	\$ 1,082,306,112
Percentage Increase in Annual Allowances		7.8%
Average Annual Allowances		\$ 20,586

* Pension and ASA annuity

Retired Members

Reconciliation of Benefit Recipients

	Number of Members	Sum of Annual Allowances*
Benefit Recipient Rolls, July 1, 2015	52,575	\$ 1,082,306,112
Added to Rolls	1,953	47,304,824
Removed from Rolls	(1,288)	(18,257,293)
Benefit Changes		(4,392,211)
End of Year Rolls	53,240	\$ 1,106,961,432
Percentage Increase in Annual Allowances		2.28%
Average Annual Allowances		\$ 20,792

* Pension and ASA annuity

Retired Members

Number of Benefit Recipients by Benefit Option

Amount of Monthly Benefit	Option A-1	Option A-2	Option A-3	Option B-1	Option B-2	Option B-3	Surv.	Dis.	Total
\$1-\$500	1,494	760	183	1,119	237	445	459	73	4,770
\$501-\$1,000	1,790	1,178	266	1,900	694	1,008	337	167	7,340
\$1,001-\$1,500	3,074	2,294	399	4,097	1,270	1,441	153	227	12,955
\$1,501-\$2,000	3,205	3,079	334	4,790	1,544	1,840	162	107	15,061
\$2,001-\$3,000	2,579	3,162	241	3,133	1,202	1,546	66	23	11,952
Over \$3,000	267	340	17	268	116	148	6	0	1,162
Total	12,409	10,813	1,440	15,307	5,063	6,428	1,183	597	53,240

Summary of Benefit Options

- A-1 - Provides a monthly benefit for retiree's life. In the event the retiree dies before receiving five years of payments, the beneficiary receives the remainder of the five years (60 months) of guaranteed Defined Benefit pension payments in a lump sum.
- A-2 - Provides a monthly benefit for retiree's life. The benefit ceases upon the death of the retiree.
- A-3 - Provides a monthly benefit for retiree's life, including monthly annuitization of member's Annuity Savings Account (ASA). In the event the retiree dies before receiving five years of payments, the beneficiary will receive the remainder of the five years of guaranteed pension payments. The ASA is reduced with each monthly benefit paid; if the retiree dies before reducing the balance to \$0.00, the beneficiary will receive a single payment of the amount remaining.
- B-1 - Provides a monthly benefit for retiree's life. Upon the death of the retiree, the qualified designated survivor receives 100% of the member's Defined Benefit for the remainder of the survivor's life.
- B-2 - Provides a monthly benefit for retiree's life. Upon the death of the retiree, the qualified designated survivor receives 66-2/3% of the member's Defined Benefit for the remainder of the survivor's life.
- B-3 - Provides a monthly benefit for retiree's life. Upon the death of the retiree, the qualified designated survivor receives 50% of the member's Defined Benefit for the remainder of the survivor's life.
- Survivors* - Provides a monthly benefit for the surviving spouse's or dependent's life. The benefit ceases upon death of the survivor.
- Disability** - Available to members with five (5) or more years of creditable service who become disabled as determined by the Social Security Administration while teaching in Indiana.

* (of members who die while in service)

** Includes Classroom Disability – Provides a benefit of \$125 per month plus \$5 for each additional year of TRF-covered service over five years

Retired Members

Schedule of Average Benefit Payments by Service at Retirement

	Years of Service at Retirement						Total
	<10	10-14	15-19	20-24	25-29	30+	
Avg. Monthly Defined Benefit Pension	\$122	\$270	\$542	\$897	\$1,270	\$1,869	\$1,532
Avg. Monthly Annuity: All Benefit Recipients	\$8	\$118	\$111	\$139	\$166	\$234	\$201
Avg. Monthly Annuity: Benefit Recipients who Annuitized their ASA Balance (23,363 Recipients)	\$31	\$198	\$196	\$270	\$366	\$604	\$468
Avg. Final Avg. Salary at Retirement	\$28,702	\$23,692	\$38,245	\$47,641	\$53,051	\$59,073	\$54,482
Number of Benefit Recipients	160	1,291	3,648	5,769	8,630	33,742	53,240

Reconciliation of Participant Data

	Active	Inactive Vested	Inactive Nonvested	Survivor	Disabled	Retired	Beneficiary	Total
6/30/2015 Census	14,327	3,119	394	1,110	606	46,879	3,980	70,415
Disabled	(8)	(7)			15			0
Retired	(945)	(780)				1,725		0
Terminated with Vested Benefit	(482)	482						0
Terminated, due a Refund	(34)		34					0
Died with Survivor	(15)	(72)		87	(12)	(461)	473	0
Died, no Survivor*	(1)	(8)	(3)	(9)	(17)	(897)	(360)	(1,295)
Refunded/Forfeited*	(11)		(54)					(65)
Dropped from Database		(28)	(1)	(5)				(34)
Rehired	233	(219)	(14)					0
Status Corrections								0
Data Corrections	3	17	1		4	116**	6	147
New Hires	61		43					104
6/30/2016 Census	13,128	2,504	400	1,183	596	47,362	4,099	69,272

* No remaining benefit obligation in the plan.

** Retirees with two benefits now counted as two separate records. In past years, benefits were combined into one record.

Summary of Actuarial Assumptions and Methods

The assumptions used in this valuation reflect the study of experience covering the period July 1, 2011 through June 30, 2014.

Measurement Date	June 30, 2017
Valuation Date	
Assets	June 30, 2017
Liabilities	June 30, 2016. Member census data as of June 30, 2016 was used in the valuation and adjusted, where appropriate, to reflect changes between June 30, 2016 and June 30, 2017. Standard actuarial roll-forward techniques were then used to project the total pension liability computed as of June 30, 2016 to the June 30, 2017 measurement date.
Interest Rate / Investment Return	6.75% per year, compounded annually (net of administrative and investment expenses).
Pay Increase Assumption	Sample increases are shown in a table on the following pages. The assumption for each year of service consists of a merit and/or seniority increase and 2.25% for price inflation.
Total Active Member Payroll	Assumed to decrease 10.9% from Fiscal 2017 to Fiscal 2018, The decrease is based on a closed-group actuarial projection of the Plan.
Price Inflation	2.25% per year. Price inflation is not directly tied to benefits; however, it is a component of the economic model used to determine total wage inflation.
Mortality	
Healthy	RP-2014 White Collar Mortality with generational improvements from 2006 based on the 2014 Social Security Administration Trustee's Report.
Disabled	RP-2014 Disabled Mortality with generational improvements from 2006 based on the 2014 Social Security Administration Trustee's Report.
Active Retirement	Rates are shown in tables on the following pages.
Deferred Vested Retirement	Age 65 (age 60 with 15 or more years of service)
Withdrawal	Sample rates are shown in tables on the following pages.
Disability	Sample rates are shown in a table on the following pages.
Form of Payment	100% of members are assumed to elect the normal form of benefit payment (Option A-1), a single life annuity with a five-year certain period.

Summary of Actuarial Assumptions and Methods

Actuarial Cost Method	Entry Age Normal (level percent of pay) method, with a 5-year, closed, level dollar amortization of the Unfunded Accrued Liability arising from all sources including actuarial gains and losses. The weighted average amortization period on 6/30/2017 is 4 years.
Asset Valuation Method	The Actuarial Value of Assets recognizes investment gains and losses in equal installments over five years. However, the Actuarial Value is limited to no more than 20% greater than or 20% less than the Market Value of Assets. Investment experience on ASA account balances is not smoothed.
Marriage Assumption	100% of members are assumed to be married for purposes of valuing death-in-service benefits. Male spouses are assumed to be three years older than female spouses.
Pay Increase Timing	Beginning of (fiscal) year. Payroll amounts stated in the valuation data are amounts projected to be paid during the current year.
Decrement Timing	Decrements are assumed to occur at the beginning of the year.
Other	Disability and withdrawal decrements do not operate after member reaches retirement eligibility. Only the withdrawal and death decrements operate during the first ten years of service.
Miscellaneous Adjustments	The Average Annual Compensation was increased by \$400 to account for the inclusion of unused sick leave in the calculation of Average Annual Compensation.
Actuarial Equivalence Basis for Optional Forms of Payment	6.75% interest with a 50% unisex blend of the 2018 IRS combined mortality bass.
Explicit Expense Load	None.
COLA Assumption	1.0% compounded annually on pension portion, with the first COLA credited on January 1, 2019. The January 1, 2018 assumed 1.0% COLA was replaced by a service-related lump sum (a "13 th check") ranging from \$150 to \$450 in September, 2017.
Cost for ASA Conversions	ASA conversions between 6/30/2017 and 12/31/2017 will be based on a 4.50% conversion rate. After 1/1/2018, ASA annuity conversions will occur outside of the plan.
ASA Annuitization	50% of ASA balances are assumed to be converted to annuities at retirement prior to 1/1/2018, 0% thereafter.
Employee Census and Asset Data	The member census data and the asset information for this valuation were furnished by the Chief Financial Officer and Staff. We did not audit the information provided, but we did review it thoroughly for reasonableness and compared it with the prior year's submission for consistency.

Summary of Actuarial Assumptions and Methods

Rates of Age and Service Retirement

Regular Retirement		Rule of 85 Retirement		Early Retirement	
Age	Probability	Age	Probability	Age	Probability
				50-53	0.020
				54	0.050
		55	0.150	55	0.050
		56	0.150	56	0.050
		57	0.150	57	0.065
		58	0.150	58	0.080
		59	0.200	59	0.120
60	0.200	60	0.200		
61	0.250	61	0.250		
62	0.300	62	0.300		
63	0.350	63	0.350		
64	0.400	64	0.400		
65	0.450	65	0.450		
66	0.450	66	0.450		
67	0.450	67	0.450		
68	0.450	68	0.450		
69	0.450	69	0.450		
70	1.000	70	1.000		

Rates of Disability

Attained Age	Age-Based	
	Male	Female
25	0.0001	0.0001
30	0.0001	0.0001
35	0.0001	0.0001
40	0.0001	0.0001
45	0.0002	0.0002
50	0.0005	0.0005
55	0.0009	0.0009
60	0.0010	0.0010

Summary of Actuarial Assumptions and Methods

Rates of Withdrawal

Years of Service	Service-Based	
	Male	Female
0	0.3500	0.3500
1	0.1400	0.1400
2	0.1100	0.1100
3	0.0900	0.0900
4	0.0800	0.0800
5	0.0700	0.0700
6	0.0600	0.0600
7	0.0500	0.0550
8	0.0450	0.0500
9	0.0450	0.0450

Attained Age	Age-Based*	
	Male	Female
30	0.0225	0.0300
35	0.0225	0.0300
40	0.0225	0.0200
45	0.0225	0.0200
50	0.0225	0.0200
55	0.0225	0.0200
60	0.0225	0.0200

**Age-Based rates apply only if 10 or more years of service.*

Summary of Actuarial Assumptions and Methods

Pay Increase Assumption

Years of Service	Merit & Seniority	Inflation	Total
1	10.25%	2.25%	12.50%
5	2.75%	2.25%	5.00%
10	2.75%	2.25%	5.00%
15	1.50%	2.25%	3.75%
20	0.25%	2.25%	2.50%
25	0.25%	2.25%	2.50%
30	0.25%	2.25%	2.50%
35	0.25%	2.25%	2.50%
40	0.25%	2.25%	2.50%

The actuarial valuation computations were made under the supervision of a Member of the American Academy of Actuaries (MAAA).

Definitions of Technical Terms

Accrued Service	Service credited under the system that was rendered before the date of the actuarial valuation.
Accrued Liability	The difference between the actuarial present value of future benefit payments and the actuarial present value of future normal costs. Also referred to as “actuarial accrued liability” or “past service liability”.
Actuarial Assumptions	Estimates of expected future experience with respect to rates of mortality, disability, turnover, retirement, rate of investment return, and pay increases. Decrement assumptions (rates of mortality, disability, turnover, and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (pay increases and investment return) consist of the underlying rates in an inflation-free environment plus a provision for a long-term average rate of inflation.
Actuarial Cost Method	A mathematical budgeting procedure for allocating the dollar amount of the “actuarial present value of future benefit payments” between future normal costs and actuarial accrued liabilities. Sometimes referred to as the “actuarial funding method”.
Actuarial Equivalent	One series of payments is said to be actuarially equivalent to another series of payments if the two series have the same actuarial present value.
Actuarial Gain / (Loss)	The difference between actual unfunded actuarial accrued liability and anticipated unfunded actuarial accrued liability during the period between two valuation dates. It is a measurement of the difference between actual and expected experience.
Actuarial Present Value	The single amount now that is equal to a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payment.
Amortization	Paying off a present value with periodic payments.
Normal Cost	The portion of the actuarial present value of future benefits that is assigned to the current year by the actuarial cost method. Sometimes referred to as “current cost”.
Unfunded Accrued Liability	The difference between the accrued liability and the actuarial value of assets. Sometimes referred to as “unfunded past service liability” or “unfunded actuarial accrued liability” or simply as “unfunded liability”.

The Actuarial Valuation Process

The **actuarial valuation** is the mathematical process by which a contribution rate is determined. The flow of activity constituting the valuation may be summarized as follows:

Covered Person Data: Furnished by the Plan Administrator

Retired Members and Beneficiaries Now Receiving Benefits
Former Employees with Vested Benefits Not Yet Payable
Active Members

+ **Asset Data (Cash and Investments):** Furnished by the Plan Administrator

+ **Estimates of Future Experience (Actuarial Assumptions):** Established by the Board of Trustees after Consulting with the Actuary

+ **Funding Method:** The Allocation of Employer Costs to Past Service, Current Service, and Future Service

+ **Mathematically Combining the Assumptions, the Funding Method, and the Data**

= **Determination of:**

Plan Funded Status and Employer Contribution Rate

Summary of Benefit Provisions

Changes in Plan Provisions since June 30, 2016

The minimum pension benefit paid to a regularly retired member receiving an unreduced pension benefit is \$185 per month effective July 1, 2017 per SEA 46.

Regular Retirement

Eligibility

Age 65 with ten years of service, or age 60 with 15 years of service, or if age is at least 55 and the sum of age plus credited service is at least 85.

Annual Amount

State pension equal to total service times 1.1% of Average Annual Compensation. Beginning July 1, 2017, the minimum pension benefit is \$185 per month.

Early Retirement

Eligibility

Age 50 with 15 years of service.

Annual Amount

State pension is computed as regular retirement benefit, but reduced for each month between age at early retirement and attainment of age 65. The age reduction factor is calculated as the sum of the following:

- 1/10 of 1% for each month from age 60 to 65.
- 5/12 of 1% for each month from age at early retirement to 60.

Deferred Retirement

Eligibility

Ten years of service. Benefit commences at regular or early retirement eligibility.

Annual Amount

Computed as a regular retirement benefit with state pension based on service and Average Annual Compensation at termination.

Disability Retirement

Regular Disability Benefit:

Eligibility

Five years of service.

Annual Amount

\$125 per month plus \$5 per month for each year of service credit over five years.

Disability Retirement Benefit:

Eligibility

Five years of service and determined to be disabled by the Social Security Administration. Annual verification of Social Security disability is required.

Annual Amount

Computed as a regular retirement benefit using creditable service to the date of disability and without reduction for early retirement. The minimum benefit is \$180 per month.

Summary of Benefit Provisions

Death Before Retirement

Eligibility	15 years of service. Spouse to whom member had been married for two or more years is automatically eligible, or a dependent may be designated as beneficiary.
Annual Amount	Computed as regular retirement benefit but reduced in accordance with a 100% joint and survivor election.

Benefit Increases After Retirement

No automatic increases after retirement are provided. Periodically, unscheduled increases have been made. In September 2017, retirees were paid a service-related lump sum ranging from \$150 to \$450.

Average Annual Compensation

Average of highest five years of compensation. Years do not need to be consecutive.

Member Contributions

All Fund members are required by state law to contribute 3% of salary contributions to their Annuity Savings Account. These 3% contributions are generally “picked up” by the employer and contributed on a pre-tax basis on behalf of the employee. Extra voluntary contributions by the member are also possible, but on a post-tax basis. At retirement, there are six alternatives for receiving the proceeds of this account, including lump sums, full and partial rollovers, full and partial annuitization of the balance, and deferred distribution.

Forms of Benefit Payment (Pension)

The normal form of benefit payment (Option A-1) is a single life annuity with a five-year certain period. There are five optional forms of payment available, as listed below. Additionally, members retiring between ages 50 and 62 may integrate their pension benefit with their Social Security benefit by choosing Social Security Integration (Option A-4) in conjunction with the normal form or any other optional form selected. Optional forms of payment are calculated on an actuarially equivalent basis.

Option A-2:	Straight Life benefit with no certain period
Option A-3:	Modified Cash Refund Annuity (operates in conjunction with the Annuity Savings Account)
Option B-1:	100% Survivorship
Option B-2:	66 2/3% Survivorship
Option B-3:	50% Survivorship

State law provides for actuarially-adjusted and re-calculated benefits based on a new optional form election in the event of the death of the member’s spouse after retirement.

Optional forms of benefit are calculated based on 6.75% interest with a 50% unisex blend of the IRS 2018 combined mortality basis.

Member Data: Total Fund

The tables below summarize the member data used in the valuation. The June 30, 2017 valuation is based on June 30, 2016 census data, with liabilities rolled-forward to the June 30, 2017 measurement date. The data summarized in this section is as of the June 30, 2016 census collection date. The pages that follow show various distributions of the member groups.

	Males	Females	Total
Number of Actives	18,553	52,672	71,225
Average Age	42.7	42.5	42.6
Average Service	14.1	13.3	13.5
Average Pay	\$ 61,278	\$ 53,704	\$ 55,677
Number of Inactive Vesteds	1,667	5,089	6,756
Average Age	51.6	53.2	52.8
Average Service	17.0	16.3	16.5
Number of Inactive Nonvesteds	3,019	9,875	12,894
Number of Retirees and Beneficiaries	19,044	39,992	59,036
Average Age	72.7	72.1	72.4
Average Years Retired	12.9	12.2	12.5
Average Monthly Annuity ¹	\$ 229	\$ 181	\$ 197
Average Monthly Pension	\$ 1,664	\$ 1,437	\$ 1,510
Total Number of Members	42,283	107,628	149,911

¹ The average monthly annuity above is the average over all retirees and beneficiaries, including those that did not annuitize their ASA balances. The average monthly annuity for the 25,100 retirees and beneficiaries that did annuitize their ASA balances is \$463.

Active Member Data: Total Fund

June 30	Number	Valuation Payroll (\$000s)	Average			
			Age	Service	Pay Increase %	
1975	63,932	\$ 749,200	38.7	10.9	\$ 11,719	
1980	66,575	1,107,699	39.7	11.9	16,638	
1985	62,932	1,519,887	41.5	14.2	24,151	
1987	64,157	1,751,709	42.0	14.5	27,303	
1989	65,986	2,044,797	42.6	14.9	30,988	
1991	63,373	2,278,715	43.0	15.4	35,957	
1992	63,980	2,416,263	43.8	16.0	37,766	5.0%
1993	64,594	2,536,165	44.0	16.1	39,263	4.0
1994	65,209	2,614,915	44.1	16.2	40,101	2.1
1995	66,542	2,728,811	44.2	16.2	41,009	2.3
1996	78,866	2,878,329	42.9	14.1	36,497	(11.0)
1997	84,206	2,984,604	42.4	13.2	35,444	(2.9)
1998	84,664	3,094,941	42.5	13.2	36,556	3.1
1999	77,745	3,294,326	44.1	15.1	42,374	15.9
2000	77,870	3,192,605	44.4	15.2	40,999	(3.2)
2001	75,648	3,318,877	44.6	15.7	43,872	7.0
2002	75,383	3,609,471	44.7	15.8	47,884	9.1
2003	73,641	3,585,135	44.5	15.5	48,684	1.7
2004	73,510	3,651,653	44.5	15.5	49,676	2.0
2005	73,923	3,734,330	44.4	15.4	50,516	1.7
2006	73,350	3,802,721	44.5	15.4	51,844	2.6
2007	75,833	4,267,995	44.9	15.5	56,281	8.6
2008	76,256	4,348,535	44.6	15.6	57,025	1.3
2009	74,343	4,339,032	44.4	15.3	58,365	2.3
2010	72,872	4,312,611	44.2	15.2	59,181	1.4
2011	71,343	4,269,944	44.5	15.5	59,851	1.1
2012	70,573	4,232,018	44.4	15.4	59,967	0.2
2013	70,414	4,124,368	43.5	14.6	58,573	(2.3)
2014*	70,414	4,124,368	43.5	14.6	58,573	(2.3)
2015*	68,734	4,006,157	43.0	14.1	58,285	(0.5)
2016*	69,592	4,048,266	42.6	13.6	58,171	(0.2)
2017*	71,225	3,965,577	42.6	13.5	55,677	(4.3)

* Valuations on and after June 30, 2014 are based on census data collected at the prior measurement date.

Active Members: Total Fund

By Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date						Total
	<10	10-14	15-19	20-24	25-29	30+	
15-19	2						2
20-24	1,451						1,451
25-29	8,668	2					8,670
30-34	8,515	1,623	1				10,139
35-39	4,029	5,259	1,546	5	2		10,841
40-44	2,558	1,964	4,142	1,025	7		9,696
45-49	2,087	1,421	2,038	3,363	704	8	9,621
50-54	1,251	945	1,219	1,274	2,356	870	7,915
55-59	791	663	979	1,072	1,116	2,513	7,134
60-64	408	364	501	666	581	2,002	4,522
65-69	182	78	113	127	115	445	1,060
70-74	48	17	18	6	7	44	140
75-79	12	1	1	1		4	19
80 & over	10	2	2			1	15
Total	30,012	12,339	10,560	7,539	4,888	5,887	71,225

Average Age: 42.6
Average Service: 13.5

Inactive Vested Members: Total Fund

By Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date						Total
	<10	10-14	15-19	20-24	25-29	30+	
30-34		69	1				70
35-39		529	36				565
40-44		570	258	20			848
45-49		531	332	129	9	1	1,002
50-54		506	299	174	92	27	1,098
55-59		535	344	248	150	121	1,398
60-64		597	222	134	81	157	1,191
65-69		248	76	48	35	95	502
70-74		22	10	6	2	9	49
75-79		2	3				5
80 & over		12	7	4	4	1	28
Total		3,621	1,588	763	373	411	6,756

Average Age: 52.8
 Average Service: 16.5

Retired Members: Total Fund

By Attained Age and Completed Years of Retirement

Attained Age	Years of Retirement						Total
	<10	10-14	15-19	20-24	25-29	30+	
Under 40	20	10	5	6	3	3	47
40-44	20	5	6	5		1	37
45-49	37	10	5	9			61
50-54	125	19	21	9	2	2	178
55-59	1,612	39	32	24	19	3	1,729
60-64	7,596	214	77	44	22	12	7,965
65-69	12,090	3,703	279	92	50	30	16,244
70-74	4,619	4,598	2,813	312	74	41	12,457
75-79	705	1,986	3,226	1,739	287	74	8,017
80-84	72	350	1,583	2,364	913	291	5,573
85-89	18	62	226	1,326	1,646	733	4,011
90 & over	13	11	30	176	865	1,622	2,717
Total	26,927	11,007	8,303	6,106	3,881	2,812	59,036

Average Age: 72.4
Average Years Retired: 12.5

Retired Members: Total Fund

By Year of Retirement

Year of Retirement As of June 30	Number	Monthly Pension	
		Total	Average
Before 1978	323	\$ 123,845	\$ 383
1978	94	42,658	454
1979	120	61,291	511
1980	163	92,029	565
1981	173	92,769	536
1982	179	100,377	561
1983	241	143,410	595
1984	308	189,321	615
1985	450	299,683	666
1986	437	301,855	691
1987	527	396,015	751
1988	658	525,998	799
1989	571	485,091	850
1990	905	904,863	1,000
1991	909	985,568	1,084
1992	885	979,546	1,107
1993	944	1,127,175	1,194
1994	1,086	1,324,203	1,219
1995	1,416	1,800,817	1,272
1996	1,454	1,889,824	1,300
1997	1,275	1,636,244	1,283
1998	1,616	2,083,913	1,290
1999	1,524	2,082,247	1,366
2000	1,812	2,547,462	1,406
2001	1,816	2,631,649	1,449
2002	2,159	3,121,754	1,446
2003	1,959	2,872,777	1,466
2004	2,288	3,411,382	1,491
2005	2,193	3,439,525	1,568
2006	2,366	3,751,812	1,586
2007	2,344	3,585,116	1,529
2008	2,914	4,549,753	1,561
2009	2,134	3,511,474	1,645
2010	2,358	4,103,487	1,740
2011	3,224	5,785,768	1,795
2012	3,611	6,598,894	1,827
2013	3,244	6,012,601	1,853
2014	2,676	4,955,961	1,852
2015	3,168	6,025,410	1,902
2016	2,512	4,574,949	1,821
Total	59,036	\$ 89,148,516	\$ 1,510

Retired Members: Total Fund

Number of Benefit Recipients by Benefit Option

Amount of Monthly Benefit	Option A-1	Option A-2	Option A-3	Option B-1	Option B-2	Option B-3	Surv.	Dis.	Total
\$1-\$500	1,777	967	207	1,306	272	507	509	139	5,684
\$501-\$1,000	2,244	1,547	318	2,314	782	1,173	392	233	9,003
\$1,001-\$1,500	3,378	2,594	440	4,409	1,367	1,567	163	250	14,168
\$1,501-\$2,000	3,430	3,272	358	5,033	1,613	1,950	169	117	15,942
\$2,001-\$3,000	2,744	3,342	259	3,422	1,288	1,670	70	29	12,824
Over \$3,000	319	398	18	337	153	183	7	0	1,415
Total	13,892	12,120	1,600	16,821	5,475	7,050	1,310	768	59,036

¹Pension only

Summary of Benefit Options

- A-1 - Provides a monthly benefit for retiree's life. In the event the retiree dies before receiving five years of payments, the beneficiary receives the remainder of the five years (60 months) of guaranteed Defined Benefit pension payments in a lump sum.
- A-2 - Provides a monthly benefit for retiree's life. The benefit ceases upon the death of the retiree.
- A-3 - Provides a monthly benefit for retiree's life, including monthly annuitization of member's Annuity Savings Account (ASA). In the event the retiree dies before receiving five years of payments, the beneficiary will receive the remainder of the five years of guaranteed pension payments. The ASA is reduced with each monthly benefit paid; if the retiree dies before reducing the balance to \$0.00, the beneficiary will receive a single payment of the amount remaining.
- B-1 - Provides a monthly benefit for retiree's life. Upon the death of the retiree, the qualified designated survivor receives 100% of the member's Defined Benefit for the remainder of the survivor's life.
- B-2 - Provides a monthly benefit for retiree's life. Upon the death of the retiree, the qualified designated survivor receives 66-2/3% of the member's Defined Benefit for the remainder of the survivor's life.
- B-3 - Provides a monthly benefit for retiree's life. Upon the death of the retiree, the qualified designated survivor receives 50% of the member's Defined Benefit for the remainder of the survivor's life.
- Survivors* - Provides a monthly benefit for the surviving spouse's or dependent's life. The benefit ceases upon death of the survivor.
- Disability** - Available to members with five (5) or more years of creditable service who become disabled as determined by the Social Security Administration while teaching in Indiana.

* (of members who die while in service)

** Includes Classroom Disability – Provides a benefit of \$125 per month plus \$5 for each additional year of TRF-covered service over five years

Retired Members: Total Fund

Schedule of Average Benefit Payments by Service at Retirement

	Years of Service at Retirement						Total
	<10	10-14	15-19	20-24	25-29	30+	
Avg. Monthly Defined Benefit Pension	\$138	\$349	\$609	\$929	\$1,291	\$1,888	\$1,510
Avg. Monthly Annuity: All Benefit Recipients	\$13	\$100	\$110	\$138	\$169	\$235	\$197
Avg. Monthly Annuity: Benefit Recipients who Annuitized their ASA Balance (25,100 Recipients)	\$52	\$183	\$208	\$278	\$376	\$610	\$463
Avg. Final Avg. Salary at Retirement	\$32,482	\$31,228	\$42,963	\$49,461	\$54,098	\$59,829	\$55,134
Number of Benefit Recipients	339	2,039	5,126	6,667	9,424	35,441	59,036

Reconciliation of Participant Data: Total Fund

	Active	Inactive Vested	Inactive Nonvested	Survivor	Disabled	Retired	Beneficiary	Total
6/30/2015 Census	69,592	7,454	12,923	1,183	767	51,509	4,093	147,521
Disabled	(17)	(13)			30			0
Retired	(1,272)	(1,106)				2,378		0
Terminated with Vested Benefit	(1,349)	1,349						0
Terminated, due a Refund	(1,902)		1,902					0
Died with Survivor	(22)	(121)		143	(16)	(488)	504	0
Died, no Survivor*	(10)	(29)	(10)	(11)	(20)	(925)	(363)	(1,368)
Refunded/Forfeited*	(235)		(1,558)					(1,793)
Dropped from Database		(28)	(1)	(5)				(34)
Rehired	1,655	(770)	(885)					0
Status Corrections								0
Data Corrections	(1)	20	(4)		6	240**	11	272
New Hires	4,786		527					5,313
6/30/2016 Census	71,225	6,756	12,894	1,310	767	52,714	4,245	149,911

* No remaining benefit obligation in the plan.

** Retirees with two benefits now counted as two separate records. In past years, benefits were combined into one record.